

ABSTRACT OF THE DISCLOSURE

A position measuring system that includes a scale having an incremental graduation track of a defined incremental graduation period and on at least one defined reference position, a reference marking field with a mean reference marking graduation period. A scanning unit movable with respect to the scale, the scanning unit having a plurality of scanning elements for generating scanning signals, wherein at least two phase-shifted incremental signals are generated as scanning signals. A first evaluation device that determines a rough reference position. A second evaluation device that determines a beat signal phase. A third evaluation device, which is suitable for unequivocally marking a beat signal period from the rough reference position and, if a defined phase position exists, to issue a fine reference position from the beat signal phase.